Communication Site Installation and Maintenance Project Aviation Safety Plan
Bridger-Teton NF and Grand Teton NP

Mission: Radio Repeater, RAWS, SNOTEL, and Webcam	Project Name: Communication Site Maintenance	Unit: BTF/GRTE
Anticipated Project Date: May 2, 2019 – May 1, 2020	Start Time: TBD	Ending Time: TBD
Project Plan Prepared by: David A. Gomez	Title: Interagency Aviation Officer	Date: 05/01/2019

Note: Required aviation training and qualifications of personnel are verified annually by the Interagency Aviation Officer and/or applicable IQCS account manager.

Project Plan Reviewed by:	Title:	Date:
Project Plan Reviewed by: /s/ Samuel Ramsay	Title: RAO	Date: 05/03/2019
This Flight is Approved by: /s/ Patricia M O'Connor	Title: Forest Supervisor	Date: 5/14/19

Project Description:

Radio Repeaters, Remote Automated Weather Stations (RAWS), Snow Telemetry (SNOTEL) and Webcams are located or may need to be installed at remote sites throughout the Forest and Park. The radio repeater network provides an essential communications link between field going resources, Teton Interagency Dispatch Center and administrative offices year-round. The RAWS provide weather information that is critical to the avalanche forecasting center and daily fire management staffing decisions. There are portable RAWS used by fire management that may be placed near large fires or prescribed burns for varying lengths of time. The SNOTEL sites are designed to collect snowpack and related climatic data. Webcams are used to monitor and detect fire and other weather events. These sites may require installation or maintenance during any month of the year. The remote nature and lack of road access to many of these sites require access by helicopter. Communication site technicians may require the transportation of large amounts of equipment utilizing either internal or external cargo operations. A site specific project aviation safety briefing and the risk assessment contained in this PASP will be completed and reviewed each time this plan is implemented.

Only agency approved aircraft and pilots will be used for these missions and a helicopter manager will approve landing areas at the communication sites. Agency Administrator approval for landing in wilderness areas will meet the requirements found in the unit aviation management plan.

Attachments: ☒ Map –Unit aerial hazard map and list of Repeater and RAWS sites	☐ Other: Site visit will be conducted prior to implementation	
Project Supervisor: TBD	Phone:	Cell:
Helicopter Manger: TBD	Phone:	Cell:
Participants:		

Type of Flight: special use	Desired Aircraft Type: Type 3 helicopter	Charge Code: TBD
Type Procurement: Exclusive Use or CWN	Method of Payment: **OAS-23 or (ABS)**	Projected Cost: $1200/flight hour

Vendor: **TBD**		Phone:	Cell:
Aircraft N#:	Make & Model:	Aircraft Color:	
Pilot Name:		Pilot Carded: ☐Yes ☐No	A/C Carded: ☐Yes ☐No
Flight Follow: AFF and Local FF when appropriate on project		Request or Flight #:	
Method of Resource Tracking: ☐ Phone ☒ Radio		☐ Prior to Takeoff ☐ Each Stop Enroute ☐ Arrival at Dest.	
Scheduling Dispatch Phone: (307) 739-3630		Destination Dispatch Phone: (307) 739-3630	
FM Receive: **Forest/Park Net**	FM Transmit:	Tones: **Forest/Park Net**	
FM Receive: Available A/G	FM Transmit:	Tones:	
FM Receive:	FM Transmit:	Tones:	
AM Air to Air: Available unit A/A	AM Unicom:	Other: Available Unit A/G will be assigned	

Search and Rescue Procedures: Contact Dispatch, Follow the Aviation Mishap Response Guide

Start Location	Latitude	Longitude	Elevation	Runway length & Surface or Helispot Size
TBD				
Destination Location	**Latitude**	**Longitude**	**Elevation**	**Runway length & Surface or Helispot Size**
TBD				

Passenger Name	Weight	Departure Point	Destination Point
TBD	**TBD**		
Cargo Weight	Cubic Feet	Hazardous Material	Destination
TBD		☐Yes ☐No	
		☐Yes ☐No	
		☐Yes ☐No	

Type of Flight	Personnel Protective Equipment Requirements
☒ Air Ops general/ground personnel	Nomex clothing, hardhat w/chin strap, gloves, leather boots, eye protection, hearing protection, fire extinguisher
☐ Fixed Wing point to point flights	Hearing protection
☐ Fixed Wing mission flights	Nomex clothing, gloves, leather boots, hearing protection
☒ Rotor Wing flights	Flight helmet, Nomex clothing, gloves, leather boots, eye protection, hearing protection, approved secondary restraint harness for doors off flights, PFD for all PAX as required

Justification statement for low-level flights: Low level flight and recon are essential to access the mountain top communication sites. Aerial delivery of cargo through long-line missions is utilized when it is clearly the most cost-efficient and timely means of delivering volumes of supplies and equipment to remote sites. Operational planning and risk considerations include minimizing the time of exposure for mission personnel vs. the demonstrated need for the cargo to be delivered.

Special Instructions: A briefing of the unit aerial hazard map will occur prior to project implementation. Known temporary flight restrictions and MTR IR-499 will also be mitigated.

Pilot and flight manager will ensure that weight and balance and/or load calculations are completed. Load must be within limitations and remain within limits considering fuel consumption.

Aircraft Manager must confirm with Dispatch prior to the flight that affected routes' Schedulers contacted for Route Activity

Military Training Route (MTR) Information

MTR	Route Legs-Altitude	Activity	Time	Time Zone
☒ IR-499	Begins SE of Cody, WY and ends near Palisades Lake, ID. Altitude of the route is from 100 feet AGL to 13,000 feet MSL 1-4 nautical miles either side of centerline. Hours of operation are continuous. Scheduling Activity is through Offutt AFB. Originating activity is through Ellsworth Air Force Base, South Dakota (phone # 605-385-1230) or (on call # 605-431-3025).	☐Hot ☐Cold	Start Stop	☐UTC ☐PST

Job Risk Analysis: Aircraft manager/pilot will review prior to implementation to ensure adequate planning and resource commitment.

Is everything approved with clear instructions, aviation plan signed and reviewed?	☐ Yes	☐ No	☐ NA
Are communications and flight following established, including repeater tones?	☐ Yes	☐ No	☐ NA
Can terrain, altitude, temperature or weather that could have an adverse effect be mitigated?	☐ Yes	☐ No	☐ NA
Are all aerial hazards identified and known to all participants?	☐ Yes	☐ No	☐ NA
Have mitigating measures been taken to avoid conflicts with military or civilian aircraft	☐ Yes	☐ No	☐ NA
Have adequate landing areas been identified and or improved to minimum standards	☐ Yes	☐ No	☐ NA
Are all agency personnel qualified for the mission?	☐ Yes	☐ No	☐ NA
Is the pilot carded and experienced for the mission to be conducted?	☐ Yes	☐ No	☐ NA
Are there enough agency personnel to accomplish the mission safely?	☐ Yes	☐ No	☐ NA
Will adequate briefings be conducted prior to flight to include Pilot, Passengers and Dispatch?	☐ Yes	☐ No	☐ NA
Are all involved aware that the pilot has the final authority, but if any passenger feels uncomfortable, that they can decline the flight without fear of reprisal?	☐ Yes	☐ No	☐ NA
Is the aircraft capable of performing the mission with a margin of safety?	☐ Yes	☐ No	☐ NA
Have manifests of cargo and passengers, load calculations and/or weight & balance completed?	☐ Yes	☐ No	☐ NA
Is the aircraft properly carded?	☐ Yes	☐ No	☐ NA
Do all personnel have the required PPE?	☐ Yes	☐ No	☐ NA
Fuel planning, adequate fuel on board, fuel truck location, availability of commercial fuel?	☐ Yes	☐ No	☐ NA
Remember; maps of areas/sites, handheld radios, cell phones, day/survival packs, sic sacks	☐ Yes	☐ No	☐ NA
Will the mission be conducted at low levels? (Below 500' AGL)	☐ Yes	☐ No	☐ NA
Can the same objective be achieved by flying above 500' AGL?	☐ Yes	☐ No	☐ NA
Are pilot flight and duty times compromised?	☐ Yes	☐ No	☐ NA
Is there an alternative method that would accomplish the mission more safely?	☐ Yes	☐ No	☐ NA

Job Hazard Analysis: Aircraft manager/pilot will review applicable elements with all participants as part of preflight briefing.

Hazard	Hazard Mitigation
MTR's	Practice risk management. Check routes in advance, confirm that Dispatch has made calls
Private aircraft	See and avoid. Transmit in the blind on 122.925 near backcountry airstrips
Airport traffic	Stay in radio contact. Announce intentions, use established patterns
Weather	Use weather advisory. Maintain VFR minimums. Cancel mission if conditions deteriorate
Terrain	Avoid performance related situations, cross terrain at it's lowest point, consider downdrafts
Low level obstacles	Complete a high level recon, no unnecessary low level flight
Unimproved landings	Recon LZ. Download on first load. Stay in radio contact
Doors off helicopter operations	Use approved secondary restraint harness. Remove loose items from cabin
Pilot not familiar with area	Supply hazard maps. Complete high level recon prior to low level work
Noise, rotor wash	Wear ear and eye protection, utilize dust abatement
Internal and external loads	Have trained personnel assigned to the mission, plan around fuel, Hook and equipment checks
Unplanned aircraft events	All personnel equipped with required PPE and trained in crash procedures, maintain flight follow
Hazardous materials	Trained personnel will handle, inform pilot, utilize Hazmat guide w/current exemption
Non aviation personnel	Maintain control, provide through briefings
Communications	Maintain communications at all times, establish backup options, and know alternate frequencies. Take handheld radio along. Call in prior to landing. If radio contact is lost, climb, check tones, if unable to re-establish, return to best suitable landing area and check in
Overload conditions/CG issues	Complete accurate load calculations and/or Weight and Balance
Wintertime operations	Use appropriate clothing for varying altitudes/climatic conditions, utilize winter survival kit
Prop/Rotor hazards	Pilot perform aircraft safety brief, Approach/Depart sensibly after shutdown & prop/rotor stop
Multiple project aircraft	Adequate aerial supervision. Carded managers for each aircraft. Establish and maintain separation, utilize common frequencies communications
Aircraft Fueling	Vendor responsibility. No agency personnel onboard. Aircraft shutdown unless closed circuit, open port in accordance with NFPA 407. Trained personnel will staff extinguisher.

Risk Assessment Matrix

Likelihood	Severity			
	Negligible IV	Marginal III	Critical II	Catastrophic I
Frequent A				
Probable B				High 4
Occasional C			Serious 3	
Remote D		Medium 2		
Improbable E	Low 1			

Severity Scale Definitions

Catastrophic	Results in fatalities and/or loss of the system.
Critical	Severe injury and/or major system damage.
Marginal	Minor injury and/or minor system damage.
Negligible	Less than minor injury and/or less than minor system damage.

Likelihood Scale Definitions

Frequent	Individual Fleet	Likely to occur often. Continuously experienced.
Probable	Individual Fleet	Will occur several times. Will occur often.
Occasional	Individual Fleet	Likely to occur sometime. Will occur several times.
Remote	Individual Fleet	Unlikely to occur, but possible. Unlikely but can reasonably be expected to occur.
Improbable	Individual Fleet	So unlikely, it can be assumed it will not occur. Unlikely to occur, but possible.

Appropriate Management Level for Operational Risk Decisions

Risk Level	Fire	Project
High	Incident Commander or Operations Sections Chief	Line Officer/Manager
Serious	Incident Commander or Operations Sections Chief	Line Officer/Manager
Medium	Air Operations Branch Director	Project Aviation Manager
Low	Base Manager	Helicopter or Flight Manager

RISK ASSESSMENT WORKSHEET

Date: 05/01/2019 **Describe Hazard:**	Probability (A-E)	Effect (I-IV)	Risk Level
1. Lack of mission clarity, command, roles and responsibilities.	C	II	3
2. Weather: poor visibility, thunderstorms, density altitude, turbulence	C	II	3
3. Mountain flying	B	II	4
4. Airspace: general aviation and military training routes	C	II	3
5. Low level flight profile below 500 AGL: low altitude obstructions	C	II	3
6. Fatigue	C	II	3
7. Improper, nonstandard, or faulty external load equipment.	D	II	2
8. Transportation of batteries and hazardous materials.	B	II	4
9. Snow Operations	C	I	4
10. Aircraft hard landing or crash.	D	I	3
Mitigation Controls:	Probability (A-E)	Effect (I-IV)	Risk Level
1. Brief all participants on the mission and the associated hazards and mitigations.	D	II	2
2. Maintain VFR, obtain current weather forecasts and continuously monitor conditions. Abort mission until more favorable conditions are present, have alternate landing locations identified. Establish trigger points to stop operations.	D	II	2
3. Ensure pilots are trained and carded for mountain flying, select aircraft appropriate for the mission; ensure performance planning is completed for environmental conditions; complete weight/balance and/or load calcs.	D	II	2
4. Perform airspace de-confliction with TIDC; be on the lookout for other aircraft, review Aerial Hazard maps; utilize CRM.	D	II	2
5. Review aerial hazard map, maintain awareness of terrain and obstacles.	D	II	2
6. Adhere to work/rest guidelines. Follow agency policy to ensure duty limitations are not exceeded.	D	II	2
7. Use qualified personnel or trainees with adequate supervision to inspect equipment used for packaging and hauling cargo.	E	II	2
8. Transportation of such devices shall conform to procedures outlined in the Aviation Transport of Hazardous Materials Handbook and ERG.	D	II	2
9. Ensure that the aircraft used is equipped with snow kits including snow pads as prescribed by the approved flight manual and the pilot is carded for snow landings. Ensure VFR conditions prevail during flight.	D	I	3
10. Brief all personnel on crash rescue and SAR plan to provide EMS support if applicable. Ensure positive flight following and communications.	E	I	2
FINAL RISK EFFECT: **LOW MEDIUM SERIOUS HIGH**			**(HIGHLIGHT ONE)**

PROJECT AVIATION SAFETY PLAN BRIEFING

Project Aviation Safety Plan Briefing and applicable elements found in the JHA will be discussed with all participants prior to start of operations.

A copy of this briefing page will be submitted to the Interagency Aviation Officer within 5 days of the completion of this project.

Briefing Leader: _____

Briefing Date: _____ Time: _____ Location: _____

Discussion Items:

___ a. Hazard Analysis (as outlined in plan)

__ b. Safety Air Ops (Ground)

__ c. Safety Air Ops (Flight)

__ d. Military Training Routes

__ e. Flight Following

__ f. Frequencies

__ g. Fueling

__ h. Emergency Evacuation Plan

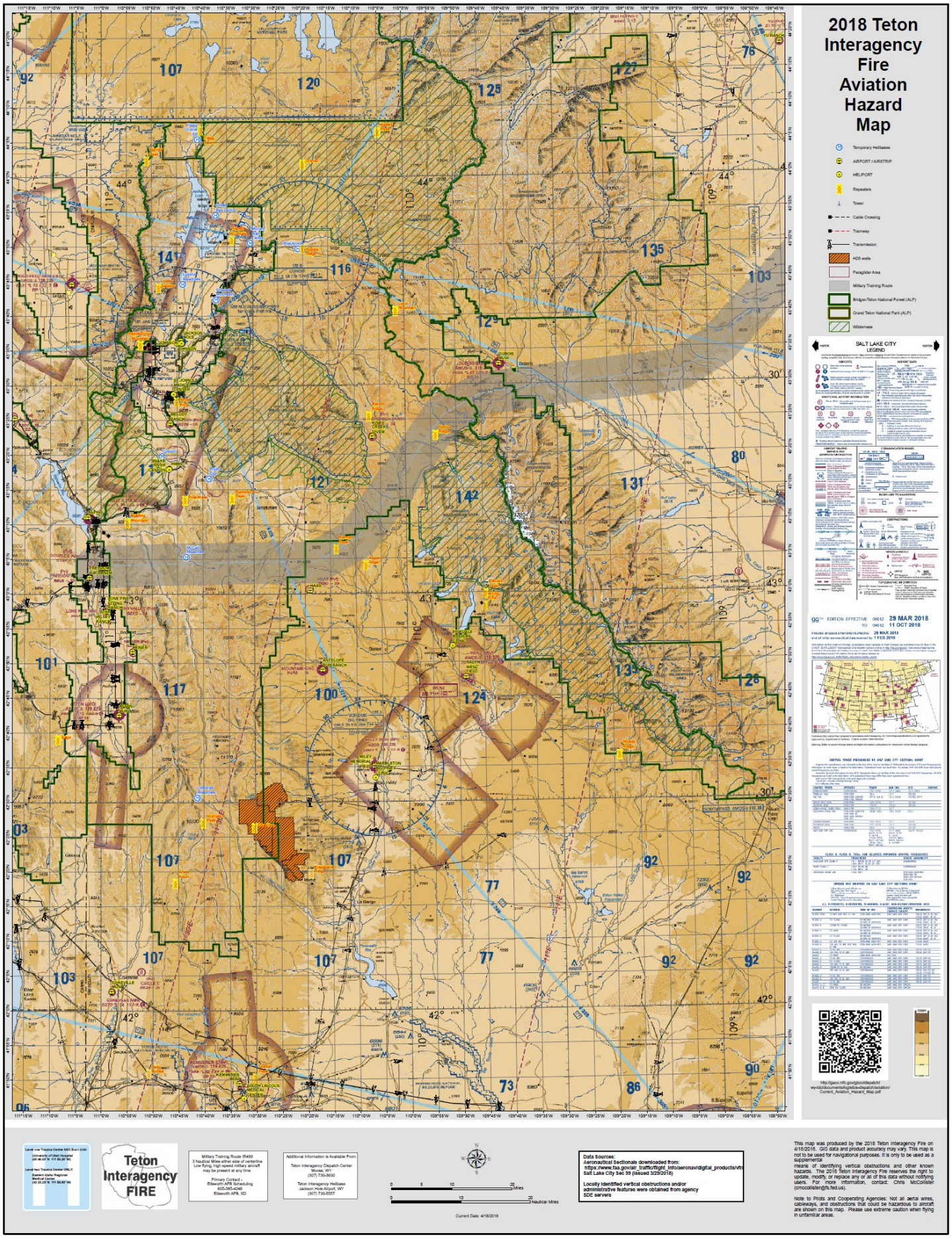
__ i. Authorities

__ j. Weather Considerations

__ k. Other

__ L. other

Attendees Signature and Concurrence:


2018 Teton Interagency Fire Aviation Hazard Map
Temporary Helibases
AIRPORT / AIRSTRIP
HELIPORT
Repeaters
Tower
Cable Crossing
Tramway
Transmission
H2S wells
Paraglider Area
Military Training Route
Bridger-Teton National Forest (ALP)
Grand Teton National Park (ALP)
Wilderness
SALT LAKE CITY LEGEND
Teton Interagency FIRE
Military Training Route IR400
3 Nautical Miles either side of centerline
Low flying, high-speed military aircraft may be present at any time.
Primary Contact -
Ellsworth AFB Scheduling
605-385-4046
Ellsworth AFB, SD
Additional Information is Available From:
Teton Interagency Dispatch Center
Moose, WY
(307) 739-3630
Teton Interagency Helibase
Jackson Hole Airport, WY
(307) 739-5507
Miles
Nautical Miles
Data Sources:
Aeronautical Sectionals downloaded from:
https://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/vfr/
Salt Lake City Sec 99 (Issued 3/29/2018)
Locally identified vertical obstructions and/or administrative features were obtained from agency SDE servers
This map was produced by the 2018 Teton Interagency Fire on 4/18/2018. GIS data and product accuracy may vary. This map is not to be used for navigational purposes. It is only to be used as a supplemental means of identifying vertical obstructions and other known hazards. The 2018 Teton Interagency Fire reserves the right to update, modify, or replace any or all of this data without notifying users. For more information, contact: Chris McCollister (cmccollister@fs.fed.us).
Note to Pilots and Cooperating Agencies: Not all aerial wires, cableways, and obstructions that could be hazardous to aircraft are shown on this map. Please use extreme caution when flying in unfamiliar areas.

BTF/GRTE Repeater Sites

Repeater Name	Latitude	Longitude	Elevation
Bacon Ridge	43° 25.467'	110° 7.217'	9550'
Bradley Mountain	43° 10.250'	110° 54.850'	9300'
Deadline	42° 26.300'	110° 30.217'	10080'
Elkhart Peak	42° 59.817'	109° 44.633'	9700'
Graham Peak	42° 26.967'	110° 40.167'	10100'
Gravel	44° 1.817'	110° 19.917'	9700'
Hawks Rest	44° 6.350'	110° 4.917'	9800'
Lava Mountain	43° 40.600'	110° 1.750'	10450'
Muddy Ridge	42° 36.283'	109° 19.017	9200'
Pinion Ridge	43° 22.700'	109° 54.100'	9080'
Ramshorn Peak	43° 13.650'	110° 34.233'	10368'
Rendezvous Mountain	43° 35.817'	110° 52.250'	10450'
Stewart Mountain	42° 42.317'	111° 14.850'	8980'
Gros Ventre	43° 35.817'	110° 52.250'	10450'

RAWS Sites

RAWS Name	Locatio	Lat.	Long.	Elevation
Grouse Mountain	Near Togwotee Pass	43° 43.333'	110° 15.400'	10377'
Mount Coffin	Near the Corral Creek	42° 36.917'	110° 37.600'	11242'
Blind Bull	Greys River Drainage	42° 57.233'	110° 36.717'	9030'
Deadman Peak	Greys River Drainage	43° 0.600'	110° 39.090'	10350'
Lava Mountain	Near Togwotee Pass	43° 39.600'	110° 1.260'	10430'

TEMPORARY HELIBASE/HELISPOT SITES

Grand Teton Park Helispots

Lupine Meadows Rescue Cache: N43 44.61 x W110 43.82
Elevation: 6550ft
Hazards: buildings, power lines, vehicles, public

Colter Bay Dump: N43 54.53 x W 110 37.23
Elevation: 7090ft
Hazards: trees around perimeter and parked vehicles

Gros Ventre Site: N43 38.438 x W110 35.039
Elevation: 6400ft
Hazards: power lines to north, public, and fencing

Moran Ball Fields: N43 50.49 x W110 30.39
Elevation: 6800ft
Hazards: Wires over buildings north of the spot, public

Flagg Gravel Pit: N44 5.436 x N110 40.830
Elevation: 6800ft
Hazards: Power line crossing access road running south to north, gravel landing surface.

Shadow Mountain: N43 42.354 x W110 37.219
Elevation: 6810 ft
Hazards: public and dispersed camping

Dugway/Sawmill Ponds: N43 39.220 x W110 44.292 (typically used for winter operations only)
Elevation: 6473 ft
Hazards: power lines and de-linear poles, limited parking and one way ingress/egress

Bridger Teton National Forest Helispots
Blackrock: N43 49.64 x W110 20.93
Elevation: 6906 ft
Hazards: wires, livestock, and vehicle traffic

Bryan Flats: N43 16.58 x W110 38.76
Elevation: 6263 ft
Hazards: power lines, public, and livestock

McCain Meadows: N43 05.31 x W110 43.26
Elevation: 6829 ft
Hazards: public and livestock

LaBarge Meadows: N42 30.65 x W110 41.26
Elevation: 8481 ft
Hazards: public and livestock

Coburn Helispot: N43 19.852 x W 110 47.987
Elevation: 6264 ft
Hazards: public vehicle traffic and livestock

AIRPORTS AND FIXED BASE OPERATORS:

Jackson Hole (JAC) N 43 36.44' x W 110 44.27
Elevation: 6451 feet MSL
Tower Frequency: 118.075
UNICOM: 122.950
GROUND: 124.55
Fuel: Avgas, Jet A
Owner: JH Airport Board – 307-733-7682
Manager: Jim Elwood – 307-733-7682
FBO: Jackson Hole Aviation: 307-733-4767
Operating Hours - 0600 - 2200

Afton (AFO) N 42 42.49 x W 110 56.53
Elevation: 6221 feet MSL
UNICOM: 122.8
Fuel: Avgas, Jet A - 24 hr. credit card service
Owner: Town of Afton – 307-885-8696
Afton FBO: 307-885-7030
Manager: Rick Sessions – 307-885-3245 or 307-887-3246

Alpine (46U) N 43 11.08 x W 110 02.55
Elevation: 5634 feet MSL
UNICOM: 122.9
Fuel: Avgas, Jet A – 24 hr. credit card service
Owner: Bill Weiman - 307-654-4646
Manager: 701-367-6161
Alpine Airpark: Scot Cook – 307-630-5212
After hours - 307-713-1313

Big Piney-Marbleton (BPI) N 42 35.11 x W 110 06.67
Elevation: 6990 feet MSL
UNICOM: 122.8
Fuel: Avgas, Jet A - 24 hr. credit card service and Jet A truck available
Owner: Public – Big Piney/Marbleton – 307-276-4022
Manager: Phil Stevens – 307-231-5516

Pinedale (PNA) N 42 47.73 x W 109 48.66
Elevation: 7288 feet MSL
UNICOM: 122.8
Fuel: Avgas, Jet A - 24 hr. credit card service
Owner: Town of Pinedale - 307-367-4136
Manager: Jim Parker – 307-360-9025
24 hour #307-413-7888 (John Douglas)

Kemmerer (EMM) N 41 49.50 x W 110 33.54
Elevation: 7282 feet MSL
UNICOM: 122.8
Fuel: Avgas, Jet A - 24 hr. credit card service
Owner: Public – Kemmerer – 307-828-4061
Manager – Chad Nielson – 307-727-7865